

**IN THE CLAIMS:**

This listing of claims will replace all prior versions and listings of claims in the application.

Claims 1-12 (canceled)

13. (new) A process for production of an aluminum alloy component of an internal combustion engine, which includes at least one area, which during operation of the internal combustion engine is thermally higher loaded than another area, comprising:

- melting that area (4) which is thermally higher loaded during the operation of the internal combustion engine by means of a beam process,
- introducing an additive (8) into the melt pool (6) resulting from the melting, and
- resolidifying said melt pool to develop in the thermal higher loaded area (4) a lower thermal coefficient of expansion ( $\alpha_2$ ) relative to the thermal lower loaded area (5).

14. (new) A process according to Claim 13, wherein a laser beam is employed for carrying out the beam process.

15. (new) A process according to Claim 13, wherein a ceramic material is employed as the additive (8).

16. (new) A process according to Claim 13, wherein that the additive is an inter-metallic compound.

17. (new) A process according to Claim 13, wherein in the thermal higher loaded area (4) a composition is formed which is modified relative to the thermal less loaded area (5).

18. (new) A process according to Claim 13, wherein the component is a cylinder head (1a).

19. (new) A process according to Claim 18, wherein the thermal higher loaded area (4) is an intermediate area (4a) located between respective valve bores (3).
20. (new) A process according to Claim 13, wherein the component (1) is a piston.
21. (new) A process according to Claim 18, wherein the thermal higher loaded area (4) is a piston bowl or a recess edge.